A COMMENT ON THE PROPOSED PRESERVATION OF THE GENERIC NAME *PANTHERA* OKEN, 1816 (MAMMALIA, CARNIVORA). Z.N.(S.) 482

(see volume 22, pages 230–232; vol. 23, pages 67–70; vol. 24, pages 3, 259–261)

By Vratislav Mazak (*Muséum National d'Histoire Naturelle, 91-Brunoy, France and Institute of Systematic Zoology, Charles University, Prague, Czechoslovakia*)

Since Morrison-Scott's (*Bull. zool. Nomencl.* **22** : 230–232, 1965) request to validate the generic name *Panthera* Oken, 1816, several comments concerning this question have been published in this journal (vol. 23 : 67–70, vol. 24 : 3 and 259–261).

Technical problems connected with the name *Panthera* Oken, 1816 were discussed in detail by Hemmer (*Bull. zool. Nomencl.* **24** : 259–260, 1967). I agree completely with Hemmer's opinion and conclusions as far as the question of the name *Panthera* is concerned. I would only like to mention some additional facts and some more general aspects concerning the problem.

There certainly is no doubt that Hershkovitz's statement (*Bull. zool. Nomencl.* **23**, 1966) that " the most commonly used generic name for great cats is *Felis* Linnaeus " has to be rejected. In the course of the last decades the generic name *Panthera* has been undoubtedly applied to big cats much more frequently than the name *Fels*. The status of the name *Panthera* Oken, 1816, has already been discussed by Ognev (*Zveri SSSR i prilezhashchikh stran*, Moscow-Leningrad, vol. iii, pp. 237–238, 1935; see also *Mammals of U.S.S.R. and Adjacent Countries*, vol. 3, Jerusalem, 1962) who did not finally accept the name. The arguments of this Russian author are principally the same as those of Hershkovitz (l.c.), i.e. that the type-species of the genus in question is *Felis colocolo*. Hemmer (l.c.) mentions, however, all the reasons showing that the name *Panthera* may be, in fact, accepted without being at variance with the International Code of Zoological Nomenclature. It is interesting to mention that the generic name *Panthera* has later on been used by Ognev himself as well as by his disciples; e.g. Stroganov in his excellent monograph on the Siberian Carnivora (*Zveri Sibiri. Khishchnye.* [*Mammals of Siberia. Carnivora.*] Moscow, 1962).

Generally a somewhat different concept of genus accepted by American authors on the one hand and by European authors on the other hand can explain another statement by Hershkovitz saying that " there is no strong evidence that great cats . . . are generically distinct from small cats . . .". As commonly known the American mammalogists incline to be more or less " lumpers ", the European mammalogists " splitters ". This question, however important it is, has none the less absolutely nothing to do with the problems of nomenclature and its stability.

Hemmer (*l.c.*, p. 260) summarizes quite a gamut of different characteristics which separate the group of so-called big cats (Pantherinae) from all other cats. To the morphological characteristics of the subfamily Pantherinae given by Hemmer, I would like to add that Ognev (*l.c.*, pp. 111–112) mentions a difference in the projection of the anterior processus of the jugal bone. As the characteristic given by Ognev was established on the basis of materials of those species of cats which inhabit the territory of the Soviet Union, I have tried to verify it in other forms of the Felidae and I can, in this place, state that the characteristic in question does not seem to be of general validity. Nevertheless, another characteristic, briefly recently described (V. Mazak, Note sur les caractères crâniens de la sous-famille des Pantherinae [Carnivora, Felidae]. *Mammalia*, **32** (in print) 1968), was found. In big cats the most anterior part of the zygomatic arch, laterally from the foramen infraorbitale, does not generally exceed the level of the foramen infraorbitale itself, whilst in small cats it generally reaches beyond the level of infraorbital foramen in the oral direction. It should be said, however, that in the Cheetah (*Acinonyx jubatus*) the shape of the anterior part of the zygomatic arch is more or less similar to that found in big cats. I think it is not necessary to mention that many other various features separate the Cheetah from big cats as well as from other cats.

As to the different features of behaviour given by Hemmer (l.c.) I can emphasize that all of them are fully justified. Indubitably we must not over-estimate the taxonomic importance of behavioural characteristics and criteria as they are influenced by evolutionary phenomena to the same extent (though perhaps in somewhat different ways) as all other characteristics and criteria used by modern taxonomy and systematics. In the case of the family Felidae both behavioural and morphological characteristics, however more or less pronounced they are, fit none the less together.

The Puma and the Leopard seem to be the best example as both of them are of about the same size. All the morphological characteristics listed by Hemmer as well as the cranial one mentioned above separate these two cats. In addition, all the basic behavioural features of the Puma are absolutely identical with those of small cats and all the principal features of behaviour in the Leopard are identical with those of all other big cats.

The group of big cats cover five species: the Leopard, the Jaguar, the Tiger, the Lion, and the Snow Leopard or Ounce. All of these species show every single one of the common characteristics summarized by Hemmer (l.c.) as well as a common skull feature given above. The Ounce presents, nevertheless, additional differences (especially cranial: general shape of skull, broad and short nasals, different form of bullae, different shape of occiput etc.) which are so distinct that an independent generic rank has to be applied for this member of the group.

I have repeated these known data in order to point out again the fact that all the species of recent Felidae can be divided into some groups on the basis of series of both morphological and behavioural differences, and to accent the other fact, viz. that within each of these groups we can find forms which are distinct enough to represent different genera in the framework of the respective group. Three or four subfamilies (Felinae Trouessart, 1885; Lyncinae Gray, 1867; Pantherinae Pocock, 1917 and Acinonychinae Pocock, 1917; Lyncinae being none the less generally included into Felinae) might thus indicate evolutionary lines and phyletic interrelations among living Felidae. Several forms of recent cats show, of course, a problematic taxonomic status and a very misty phylogenetical position. From this point of view the position of the Clouded Leopard, *Neofelis nebulosa*, that in my opinion cannot certainly be held to be a member of Pantherinae, might turn out to be of the greatest interest.

Zoological nomenclature serves the end of zoological classification and a modern classification should reflect phylogeny, and developmental evolution, on the different levels of taxa. Morphological differences, of which cranial and skeletal ones are the most important, still represent the basis for such a classification in Mammals. There is no doubt that there are no fundamental differences in the general plan of skull structure in living Felidae. We cannot here go deep into the details of the problem of evolution and its ways, and there is no need to do so in order to show that even the greatest morphological similarities are in no contradiction with quite different origins of the forms in question. The findings of fossil cats show more and more the difficulties we are facing, when trying to study interrelationship of different forms of the Felidae. The palaeontological evidence also seems to suggest that main groups of cats could be less related among themselves than generally believed. Hence, it appears we should finally admit the justification of different genera and subfamilies in the living Felidae.

I would like to emphasize again that all the problems mentioned above have directly nothing to do with the problems of nomenclature. All the discussion which has gone on in this journal has only shown that the questions of interrelationships in the family Felidae are not clear. All this discussion has also shown the different opinions of various students and that can only be another reason that the generic name *Panthera* Oken, 1816 should be validated. A different opinion needs admittedly to be expressed in a formally correct way, if for nothing else than in the interest of defending zoological nomenclature against confusion and in the interest of its stability. In my opinion the preservation of the generic name *Panthera* would be in the full accordance with these interests.

In conclusion, I would like to subjoin and to support Morrison-Scott's and Hemmer's application for conservation of the generic name *Panthera* Oken, 1816.